

172 024 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--THERMOLYSIS OF NEODYMIUM HYDROXYSULFATES AND HYDROXIDES -U-  
AUTHOR-(04)-MARGULIS, YE.V., SHOKAREV, M.M., NOVSELOVA, V.N., VERSHININA,  
F.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1451-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--THERMAL DECOMPOSITION, NEODYMIUM COMPOUND, HYDROXYL RADICAL,  
SULFATE, COMPLEX COMPOUND, IR SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/1200 STEP NO--UR/D078/70/015/006/1451/1458  
CIRC ACCESSION NO--AP0138215  
UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001      CIA-RDP86-00513R002201920017-7

MATERIALS AND OF INTERMEDIATE PRODUCTS ARE GIVEN. THE RELATIVE STRENGTH OF BANDS AND COORDINATION NOS. OF THESE SPECIES ARE DISCUSSED. A NEW SPECIES, NO SUB2 O(SO SUB4) SUB2, FORMED AS AN INTERMEDIATE DURING THE THERMOLYSIS OF I.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001      CIA-RDP86-00513R002201920017-7"

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--INFRARED SPECTRA OF NORMAL SULFATES AND OF OXIDE SULFATES OF  
COPPER, ZINC, CADMIUM, AND MERCURY -U-  
AUTHOR-(03)-SHOKAREV, M.M., VERSHININA, F.I., MARGULIS, YE.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 151-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPPER COMPOUND, ZINC, CADMIUM, MERCURY, SULFATE, IR SPECTRUM,  
PYROLYSIS, METAL OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0920

STEP NO--UR/0192/70/011/001/0151/0154

CIRC ACCESSION NO--AP0116430

UNCLASSIFIED

2/2 APPROVED FOR RELEASE: 09/01/2001 ED CIA-RDP86-00513R002201920017-7"  
CIRC ACCESSION NO--AP0138215  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOLYSIS OF (NH(OH)(H SUB2 O)

2/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0116430  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE IR SPECTRA OF  $\text{CuSO}_4$ ,  $\text{ZnSO}_4$ ,  $\text{CdSO}_4$ ,  $\text{HgSO}_4$ ,  $\text{CuO} \cdot \text{CuSO}_4$ ,  $\text{ZnO} \cdot 2\text{ZnSO}_4$ ,  $2\text{CdO} \cdot \text{CdSO}_4$ , AND  $2\text{HgO} \cdot \text{HgSO}_4$  WERE RECORDED AT 2000-400 CM PRIME NEGATIVE1. THE OXIDE SULFATES OF CU, ZN AND CD WERE PREPD. BY PYROLYSIS OF THE SULFATES AT 680, 700, AND 920 DEGREES, RESP. THE SAMPLES FOR IR EXAMN. WERE PREPD. AS VASELINE OIL MULLS OF THE FINELY POWD. SALTS. THE FOLLOWING FREQUENCIES WERE SELECTED FOR SULFATE DETN. IN OXIDE SULFATES: FOR CU SUALTS 708 AND 628, ZN 601 AND 542, CD 674 AND 618, AND HG 648 AND 598 CM PRIME NEGATIVE1. THE SENSITIVITY OF THE METHOD WAS SIMILAR TO 5PERCENT. FACILITY: VSES. NAUCH.-ISSLED. GORNOMET. INST. TSVET. MET., UST-KAMENOGORSK, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--FORMATION CONDITIONS FOR NEDDYMIUM HYDROXIDE AND HYDROXOSULFATES  
-U-  
AUTHOR--MARGULIS, YE.V., NOVOSELOVA, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 580-2  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROGEN ION CONCENTRATION, CHEMICAL TERNARY SYSTEM, SODIUM  
HYDROXIDE, WATER, NEDDYMIUM COMPOUND, SULFATE, HYDROXYL RADICAL  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA4E--1983/0915 STEP NO--UR/0078/70/015/002/0580/0582  
CIRC ACCESSION NO--AP0053839  
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--11SEP70  
CIRC ACCESSION NO--AP0053839  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ND SUB2(SO SUB4) SUB3-NADH-H  
SUB2 O SYSTEM WAS STUDIED AT PH 0-6.0 AND 22DEGREES. ND(OH)SO SUB4  
FORMED AT PH SMALLER THAN 3,ND SUB2(OH) SUB4 SO SUB4 AND PH 3-4, AND  
ND(OH) SUB3 AT PH GREATER THAN 4.

UNCLASSIFIED

Acc. Nr: **AP0053890** - Abstracting Service:  
- CHEMICAL ABST. 6-70

Ref. Code:

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*M*

-116306v Cadmium hydroxide and hydroxosulfates, and products of their thermolysis. Margulis, E. V.; Shokarev, M. M.; Beiseketva, L. I.; Vershinina, T. N. (USSR). Zh. Neorg. Khim. 1970, 15(2), 374-8 (Russ). The title compds. were studied by using x-ray diffraction, ir spectrophotometry, DTA and thermal gravimetry. In the investigated sulfates,  $\text{SO}_4^{2-}$  has  $D_2$  symmetry and is coordinated to 4  $\text{Cd}^{2+}$ . The splitting of  $\nu(\text{SO}_4)$  implies that the strength of the crystal field decreases with the compds. in the order:  $\text{CdSO}_4 > 2\text{CdO} \cdot \text{CdSO}_4 > \text{CdSO}_4 \cdot \text{Cd}(\text{OH})_2 > \text{CdSO}_4 \cdot n\text{Cd}(\text{OH})_2$ . Ir spectra of hydroxosulfates are very complex due to interactions of  $\nu(\text{OH})$  with lattice frequencies and due to various natures of the OH present. Thermal stability of hydroxo compds. decreases in the order:  $\text{CdSO}_4 \cdot \text{Cd}(\text{OH})_2 > \text{CdSO}_4 \cdot n\text{Cd}(\text{OH})_2 > \text{Cd}(\text{OH})_2$ . HMJR

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REEL/FRAME  
**19830967**

*18*

USSR

UDC 621.039.51.001.5

MARGULOVA, T. Kh., ZORIN, V. M.

"Study of the Thermal and Water-Flow Design of a Single-Loop Atomic Power Station"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, No. 126, pp 71-78 (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract No 11.50.85)

Translation: The thermal design of a single-loop atomic power station is investigated. Features of selecting the thermal design considering water requirements are determined. Ensuring the durability and reliability of the operation of the shells of the fuel elements and of the water-vapor regime of the turbine and reducing the extent of activity in all elements of the circuit lead to requirements imposed on the quality of the reactor in the feedwater in a single-loop atomic power station in terms of determining these requirements in organizing the thermal design of the station. Expenditures on equipment and assembly, transportation and storage expenses, and other expenditures considering economy measures were taken into account in the power station design. 1 ill., 2 tables, 3 ref.

1/1



USSR

UDC 621.039.512.001.5

MARGULOVA, T. Kh., VORONOVA, V. P., DIK, V. P.

"Experimental Setup for Studying the Applicability of Carbon Steels in the Primary Loops of an Atomic Power Station With a Water-Moderated, Water-Cooled Power Reactor"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, No. 126, pp 1-8 (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract No 11.50.95)

Translation: A semi-production installation simulating conditions of the primary loop of an atomic power station with a water-moderated, water-cooled power reactor was developed and put into operation by the Chair of Atomic Power Stations in conjunction with the Heat and Electric Power Plant of the Moscow Power Engineering Institute and the Planning Office of the Moscow Regional Administration of Power System Management. The device can reproduce any water regimes and one can study the effect of individual water admixtures on the structural material and primarily on pearlite steel and zirconium alloys. Results of studies made on various experimental installations are given. 1 ill.

1/1

USSR

UDC 539.5

GERASIMOV, V. V., Doctor of Technical Sciences, LIPANINA, A. A.,  
Candidate of Technical Sciences, and MARGULOVA, T. Kh., Doctor  
of Technical Sciences

"Hydrogen Introduction Into Steels and its Effect on Plasticity  
Properties"

Moscow, Teploenergetika, No 2, Feb 71, pp 72-74

Abstract: Results of investigating the introduction of hydrogen into  
perlite steels 22K, 16GNM, 15KhM, structural steel, and  
stainless steel 1Kh18N9T are discussed by reference to tabula-  
ted data showing hydrogen contents of investigated steels, their  
changes of mechanical properties after hydrogen introduction de-  
pending on the cold-hardening extent, and the mechanical charac-  
teristics of steels 22K, 16GNM, and structural steel after elec-  
trolytic hydrogen introduction. It was found that structural steel  
is the least disposed to hydrogen absorption, that plastic defor-  
mation up to 15 % increases the sensitivity of all perlite steels

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USSR

GERASIMOV, V. V., et al., Teploenergetika, No 2, Feb 71, pp 72-74

to hydrogen embrittlement, and that Trilon treatment promotes conservation of plasticity properties by decreasing the hydrogen content. A thermal treatment for removal of the cold-hardening is considered to be obligatory and complexone treatment to be beneficial for decreasing the possibility of hydrogen embrittlement. One illustr., four tables.

2/2

- 44 -

USSR

UDC 621.039.548.535:669.14

MARGULOVA, T. KH., GERASIMOV, V. V., and LIPANINA, A. A.

"Steel Hydrogenation as Affected by Treatment with Trilon B"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep-Oct 70, pp 209-210

Abstract: The article describes results of a study of the effect of Trilon treatment on the hydrogenation of steel. Cylindrical specimens were saturated with hydrogen by the electrolytic method. Steels used for separating drums and steam lines (22K and 16GNM), as well as for reactor vessels were studied. Before hydrogenation some of the specimens were treated with a Trilon B solution with an initial concentration of 500 mg/kg with a pressure rise to 100 at (290° C) for 6 hours and exposure under this regime for 12 hours, and a group of 16GNM specimens were held in condensate for 500 hours at a pressure of 200 at (350° C), while some specimens were not exposed to any aqueous medium. The results indicate that periodic treatment with complexing agents improves the mechanical characteristics of hydrogenation-

1/2

USSR

MARGULOVA, T. KH., Atomnaya Energiya, Vol 29, No 3, Sep-Oct 70,  
pp 209-210

prone steels. Trilon treatment is advisable not only to increase the general corrosion resistance of pearlitic steels, but also to prevent intensive hydrogenation.

2/2

- 26 -

USSR

UDC 620.197.1

MARGULOVA, T. KH., Doctor of Technical Sciences, BURSUK, L. M., Candidate of Technical Sciences, BOGATYREVA, S. V., Engineer, LIPANINA, A. A., Engineer; Moscow, Power Engineering Institute

"The Corrosion of Structural Materials in Boron-Containing Solutions That are Used for Controlling the Pump Work of Nuclear Reactors"

Moscow, Teploenergetika, No 12, 1970, pp 14-17

Abstract: The corrosion resistance of steel 1Kh18N9T, zirconium alloys with 1 and 2.5% niobium (the materials of fuel-element shells and cassettes), as well as carbon steel 20 and low-alloy vessel steel in boron-containing solutions is investigated. It is shown that the use of boric acid for "soft" control and the emergency stopping of nuclear reactors does not bring about corrosion of the structural materials. Five figures, 3 tables.

1/1

- 42 -

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--STEAM AND WATER CORROSION OF HEATING SURFACES UNDER EXTREME HEAT  
LOADING -U-  
AUTHOR--(02)-AKOLZIN, P.A., MARGULOVA, T.KH.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOENERGETIKA 1970, 17(4), 73-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--CARBON STEEL, STEAM BOILER, CORROSION RATE, STAINLESS STEEL,  
IRON OXIDE, LOW ALLOY STEEL, HIGH TEMPERATURE EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605019/806 STEP NO--UR/0096/70/017/004/0073/0074  
CIRC ACCESSION NO--AP0140899  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140899

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEST INSTALLATIONS FOR SUBCRIT. AND SUPERCRIT. PRESSURE BOILER SYSTEMS SHOULD NOT BE MADE AS USUAL FROM STAINLESS STEEL BUT FROM THE SAME MATERIALS AS TO BE USED FOR THE CONSTRUCTION OF THE PRODUCTION UNITS. IN GENERAL, DEFECTS ARE FREQUENTLY VISIBLE NEAR WELDED JOINT, BENDS, AND ON LIGHT SLOPING AND HORIZONTAL TUBES. HEAT LOADING, MEDIUM TEMP., MASS VELOCITY, SUBCRIT. PRESSURE, AND VAPOR CONTENT OF THE FLOW HAVE EFFECT ON THE SIZE OF THE DEFECT. ON C STEEL AND ON LOW ALLOY STEEL PROTECTION WITH A FILM OF FE OXIDE CAN BE ACHIEVED BY A PROCESS OF THERMAL DISSOCN. OF FE COMPLEXONATES. THE OPERATING PROCESS FOR SUPERCRIT. PRESSURE BOILERS REQUIRES A RECIRCULATION PUMP, THE HYDRODYNAMICS AND HEAT TRANSFER CONDITIONS ALSO NECESSITATE A RECIRCULATION PUMP.

UNCLASSIFIED



MARGULOVA, T.K.

ATOMIC ELECTRIC-POWER STATIONS

JPRS 58747  
16 April 1973

Selections from Russian-language book by T. Kh. Margulova:  
Atommoelektrostaniy s vodoi, 1969, Yuzhaya Sibirskaya nauchno-issledovatel'skaya i inzhenernaya firma, Novosibirsk.

CONTENTS

PAGE

|  |   |
|--|---|
| ABSTRACT.....  | 1 |
| PART I. TABLE OF CONTENTS.....   | 3 |
| Part II.....   | 9 |
| Chapter 19: Assembly of the Main Building of Atomic Electric-Power<br>Stations With a Water Coolant..... | 9 |

(I - USSR - K)

USSR

UDC: 547.944/945

MARGVELASHVILI, N. N., PAKALN, D. A., All Union Scientific Research Institute of Medicinal Plants

"Investigation of the Composition of Corydalis Persica Alkaloids"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1973, p 133

Abstract: The authors study the alkaloid makeup of tubers of Corydalis persica Cham et Schlecht of the family Papaveraceae. The alkaloid sum (1.63%) was isolated by the dichloroethane method. Column chromatography on aluminum oxide and extraction with diethyl ether yielded a white crystalline optically inactive substance of empirical formula  $C_{20}H_{15}O_5N$  with melting point of  $266^{\circ}C$  (ether) identified as sanguinarine. Extraction with a diethyl ether chloroform mixture (97:3) produced chelerythrine  $C_{21}H_{19}O_5N$  with melting point of  $208^{\circ}C$  (ether). Extraction with a diethyl ether chloroform mixture (95:5) gave a substance with empirical formula  $C_{20}H_{19}O_5N$  and melting point of  $204-205^{\circ}C$  identified as protopine.

1/1

- 4 -

USSR

UDC 547.944/945

MARGVELASHVILI, N. N., KIR'YANOVA, A. T., and TOLKACHEV, O. N., All Union Scientific Research Institute of Medicinal Plants

"Chemical Study of the Alkaloids from Corydalis rosea"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1972, pp 127-128

Abstract: Dichloroethane extraction of the Corydalis rosea Leych grass yielded five alkaloids. The strongly basic fraction consisted of protopin which was identified by direct comparison. The main component of the weakly basic fraction, melting at  $237^{\circ}$  was identified as 1-adlumidine, its racemic mixture melting at  $184-186^{\circ}$ . The fourth alkaloid isolated was found to be the 1-adlumine, m.p.  $179-180^{\circ}$ , and the mother liquor from its crystallization contained the fifth product -- dl-adlumine.

1/1

USSR

UDC 621.646.7:621.52

MARICHEV, V. A.

"Torsion Sylphon Bellows"

Moscow, Pribery i Tekhnika Eksperimenta, No 6, 1971, pp 184-185

Abstract: A metal elastic element is introduced which can be considered as a torsion-operated sylphon bellows. The schematic diagram of a superhigh vacuum shaft seal for transmitting large torques with high frequency used in the described bellows is presented. The torsion sylphon bellows is similar in shape to an unparted hyperboloid with corrugations along the rectilinear generatrix. During torsion all the corrugations are deformed identically, but each corrugation is deformed nonuniformly -- not at all at the base of the bellows and to a maximum in the middle. The diameter of the central section and the length change somewhat during torsions, but the device operates in the elastic region which insures its significant service life. The device can be used for joining pipelines individual elements of which have small axial rotation and it can be used as the sensitive element of a pressure relay.

1/1

- 137 -

USSR

UDC 669:620.194.8

MARICHEV, V. A., Scientific Research Institute for Machine Studies, Moscow

"Durability of Metals As a Function of Corrosive Medium Activity and Cyclic Loading Frequency"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 5, 1970, pp 3-7

Abstract: A short survey is made of the various papers on this subject, from which it is concluded that the change in corrosion fatigue of materials can be described by an equation taking into account the loading frequency and the aggressiveness of the corrosive medium as determined by the nature of the solution or gas. The simplest case, that of corrosion fatigue in air or oxygen in a broad range of pressures is considered. The formation of oxides on metal surfaces progresses in three stages: surface adsorption, the establishment of two-dimensional beginnings of the new oxide phase, and their growth until they cover the entire surface. The adsorption stage is rapid; at an oxygen pressure of  $10^{-5}$  to  $10^{-6}$  mm Hg, a typical condition in fatigue testing, a monomolecular layer appears in about 0.1 seconds.

1/2

USSR

MARICHEV, V. A., Fiziko-Khimicheskaya Mekhanika Materialov,  
Vol 6, No 5, 1970, pp 3-7

which is comparable to the duration of the loading cycle in tests where the frequency is about 50 Hz. An equation is derived for the radius of the two-dimensional seed of the oxide phase as a function of time, and in terms of two constants. The first of these is the radius of the seed at the moment  $t = 0$ ; the second is the factor determining the linear growth of the seed, and is a function of the type of metal and its oxide, the temperature, and the oxygen pressure. An expression is derived for the oxidation rate in terms of a constant  $n$ , which was calculated to be 0.78. This value agrees closely with the experimentally determined value of 0.75. A short description of the experimental method and equipment is given.

1/1

USSR

UDC 621.373.826:550.3

ZUYEV, V. Ye., KOSTIN, V. V., MARICHEV, V. N., and SOSNIN, A. V.

"Propagation of Laser Radiation of 2.36 Micron Wavelength in the Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 162-164 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D442)

Translation: Results are given of measurements of the attenuation of a laser with  $\lambda = 2.36 \mu$  (the laser using  $\text{Ca,F}_2:\text{Dy}^{2+}$ ) under complex meteorological conditions. It is shown that the dispersion by particles of atmospheric aerosol plays the decisive role. In several cases, the attenuation factor at  $\lambda = 2.36 \mu$  is greater than at  $\lambda = 0.63 \mu$ . One table, bibliography of four. A. L.

1/1

- 82 -

AA0040740-

Marienbakh, L.M.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

1-70

242325 ARC IRONMAKING FURNACE hearth is asymmetric-  
ally convex so that it expands towards the  
charging window and narrows towards the notch,  
whilst the electrodes lie in the narrow portion to  
provide continuous iron making. The charge is fed  
in continuously into the bath (3) of molten metal  
and the charged lumps draw heat from the metal  
which has been produced by the arc between this and  
the electrodes (4). The position of the notch (6)  
ensures that the bath meniscus remains at a constant  
level. Surplus flows out thus to a teeming arrange-  
ment for re-pouring into cast product. Slag also  
runs off continuously thus keeping the bath clean  
and receptive to the heat from the arc. The  
hottest metal flows off continuously, some of it  
is turbulised near the periphery and returned to  
the bath to melt the slag component.

18

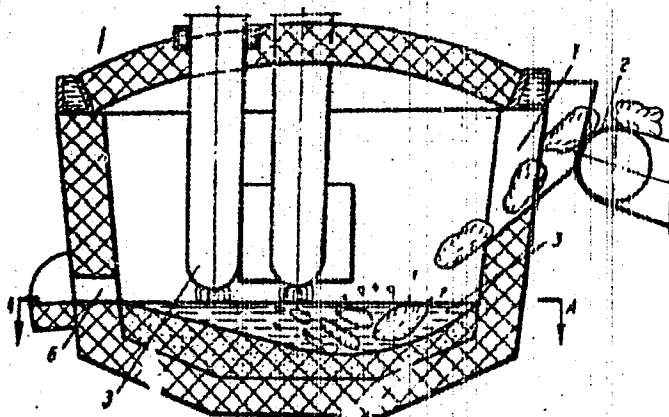
19.5.67 as 1157178/22-2. CHERNYI, A.A. et al. PENZA  
COMPRESSOR WORKS. (2.9.69) Bul 15/25.4.69. Class  
31a<sup>1</sup>. Int.Cl.F 27 b.

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19750406



AA0040740



19750407

AA0040740

AUTHORS: Chernyy, A. A.; Grachev, V. A.; Marienbakh, L. M.; Ivanov,  
D. P.; Kurbatskiy, I. L.; Sosnovskiy, A. D.; and Pavlenko,  
N. S.

Penzenskiy Kompresornyy Zavod

19750408

3/3

USSR

UDC 51.621.39

MARIGODOV, V. K.

"Capacity of Channel With Predistortions"

Otbor i peredacha inform. Resp. mezhved. sb. (Information Gathering and Transmission. Republic Interdepartmental Collection of Works), 1972, vyp. 34, pp 32-34 (from RZh-Matematika, No 3, Mar 73, Abstract No 3V458 from author's abstract)

Translation: The article considers the influence of linear predistortions during the transmission of digital information on the capacity of a channel with constant parameters and additive white noise. An investigation is made of the effectiveness of predistortions for narrow-band and broad-band signals.

1/1

USSR

MARIGODOV, V. K.

"The Throughput Capacity of a Channel with Predistortions"

Otbor i Peredacha Inform. Resp. Mezhved. sb. [Selection and Transmission of Information, Republic Interdepartmental Collection], 1972, No 34, pp 32-34 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V458 by the author).

Translation: The influence of linear predistortions in transmission of discrete information on the throughput capacity of a channel with constant parameters and additive white noise is studied. The effectiveness of predistortions for narrow-band and broad-band signals is studied.

1/1

USSR

UDC: 621.317.75

AKULOV, Yu. V., ZIBOROV, S. R., KLIMOV, V. P., KRASNOV, L. M., MARIGODOV,  
V. K.

"Some Problems in Measuring the Amplitude-Frequency and Phase-Frequency Characteristics of Quadripoles"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmeryeniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 67-70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A393)

Translation: The authors point out fundamental difficulties and formulate requirements which must be imposed when designing wide-band two-frequency sweep generators and mixers which are the principal component parts of instruments for measuring the amplitude-frequency and phase-frequency characteristics of quadripoles. A block diagram is given together with a description of the operation of an instrument designed by the authors for measuring the phase-frequency and amplitude-frequency characteristics in the 5-50 MHz range. The instrument has a phase measurement limit of  $\pm 90^\circ$  and a trans-

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USSR

AKULOV, YU. V., et al, Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, 1970, pp 67-70

mission ratio limit of 10 DB. A serially produced F2-1 instrument is used as the low-frequency phase meter in the indicator section. The error in phase measurement is no greater than  $2^{\circ}$  over the entire working frequency range. E. L.

2/2

USSR

UDC: 621.317.75

AKULOV, Yu. V., ZIBOROV, S. R., KLIMOV, V. P., KRASKOV, L. M., MARIGOROV,  
V. K.

"A Two-Frequency Sweep Generator for Measuring Amplitude-Frequency and  
Phase-Frequency Characteristics in a Frequency Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Re-  
ports of the All-Union Scientific and Technical Conference on Radio Engineer-  
ing Measurements. Vol. 2), Novosibirsk, 1970, pp 123-125 (from RZh-Radiotekh-  
nika, No 12, Dec 70, Abstract No 12A390)

Translation: The article describes one of the basic modules of an instru-  
ment for measuring amplitude-frequency and phase-frequency characteristics.  
A two-frequency sweep generator with a sweep band from 5 to 50 MHz is de-  
signed on the principle of frequency conversion. The complete block dia-  
gram of the two-frequency sweep generator is given with enumeration of all  
modules. The sweep generator is based on two quartz-crystal resonators  
on a frequency of 57 MHz excited on the fifth mechanical harmonic and used  
in two corresponding quartz-crystal oscillators. In addition to the fre-  
quencies generated by these two oscillators, their beat frequency (difference  
frequency) is also used. The two-frequency sweep generator was used as

1/2

USSR

AKULOV, Yu. V. et al., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, pp 123-125

the oscillator module in the above-mentioned instrument for measuring amplitude-frequency and phase-frequency characteristics by the frequency transfer method, giving a phase measurement precision to  $3^\circ$ . One illustration. E. L.

2/2



USSR

UDC: 621.391.17

MARIGODOV, V. K.

"Noise Immunity of a Broad-Band Communication System with Preemphasis"

Moscow, Radiotekhnika, Vol. 26, No 1, 1971, pp 11-16

Abstract: The efficiency of preemphasis in a broad-band communication system based on the principle of single-band telephone information transmission plus frequency repetition in regular communication channels with coherent addition of the received signals, is considered. Only regular channels with constant parameters are taken into account. A block diagram of the system is shown. A single-band telephone signal of given bandwidth is linearly preemphasized with a frequency characteristic and simultaneously transmitted by a number of transmitters with an arbitrarily selected array of carriers which are known at the reception points. There is an equal number of receivers with a frequency restoration characteristic which is the inverse of the preemphasis transmitter characteristic. The efficiency criterion is the ratio of the average signal power to the weighted average noise power at the input to the coherent addition device with distortion, compared to the same ratio without distortion.

1/2

USSR

MARIGODOV, V. K., Radiotekhnika, Vol 26, No 1, 1971, pp 11-15

Expressions are found for the optimal preemphasis characteristics, and the optimal efficiency of the preemphasis for some signal and noise characteristics is estimated. It is found that for telephone signals transmitted in a single band, the maximum gain due to preemphasis in concentrated noise is about 1.2 nepers.

2/2

- 26 -

1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PROBLEMS ASSOCIATED WITH THE INVULNERABILITY TO JAMMING OF AM AND  
FM SIGNALS IN THE PRESENCE OF PREDISTORTION -U-  
AUTHOR--MARIGODOV, V.K.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, RADIOTEKHNIKA, NO 1, 1970, PP 21-24  
DATE PUBLISHED-----70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION  
TOPIC TAGS--COMMUNICATION JAMMING, INTERFERENCE IMMUNITY, SIGNAL  
TRANSMISSION, FREQUENCY DISTORTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1360 STEP NO--UR/0103/TC/000/001/0021/0024  
CIRC ACCESSION NO--AP0123318  
UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATE THE EFFECTIVENESS OF PREDISTORTION IN TRANSMITTING AM AND FM SIGNALS IN THE CASE OF KNOWN PREDISTORTION CHARACTERISTICS AND CORRECTING UNITS. A COMPARATIVE ANALYSIS IS MADE WITH RESPECT TO GAIN IN INTERFERENCE INVULNERABILITY RESULTING FROM THE INTRODUCTION OF DISTORTION FOR THE ABOVE SIGNALS ALONG WITH SOME TYPES OF ADDITIVE INTERFERENCE. THE ORIGINAL ARTICLE HAS ONE TABLE, ONE ILLUSTRATION, AND SIX BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UFC 621.391.17

M  
MARIGODOV, V. K.

"Noise Immunity of a Frequency Modulation Channel with Pre-Emphasis"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol 13, No 7, 1970, pp 833-839

Abstract: The gain accruing in the protection of FM signals with pre-emphasis against noise can be characterized by a coefficient giving the ratio of the signal-to-noise ratio at the input of a receiver with pre-emphasis to the signal-to-noise ratio at the input of the receiver without pre-emphasis, the average signal power at the channel input remaining constant. The author considers the efficiency of using optimal pre-emphasis in single-channel systems where the purpose of the pre-emphasis is to optimize the signal-to-noise ratio in the one channel rather than to "equalize" the noise immunity of the upper and lower channels of the group spectrum. By minimizing the signal power at the channel input with fixed noise power at the receiver input, he determines the optimal frequency characteristic of the pre-emphasis circuit and the value of the gain characteristic defined above. He also finds the efficiency of the pre-emphasis for narrow-band FM and additive white noise, narrow-band FM and the quadratic form of the additive noise spectrum, narrow-band FM and the "triangular" frequency characteristic of

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USSR

MARIGODOV, V. K., Izvestiya VUZ -- Radioelektronika, Vol 13, No 7, 1970, pp 833-839

the pre-emphasis circuit, wide-band FM and additive white noise, wide-band FM and the quadratic noise spectrum. He concludes that his findings confirm the suitability of optimal pre-emphasis to single-channel systems of information transmission through FM.

2/2

- 38 -

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--FORMATION OF COMPOUNDS OF AROMATIC, THIOPHENE, AND DIENE SERIES  
DURING THE PYROLYSIS OF COAL AND VAPOR GAS PYROLYSIS PRODUCTS -U-  
AUTHOR-(04)-MARIICH, L.I., GANZHA, L.M., LENKEVICH, ZH.K., SHCHERBAN, I.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (3), 127-31

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIENE, THIOPHENE, PYROLYSIS, COAL, BENZENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0865

STEP NO--UR/0467/70/000/003/0127/0131

CIRC ACCESSION NO--AP0137893

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 008

CIRC ACCESSION NO--AP0137893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYROLYSIS OF COAL WAS DONE IN A LAB. TUBULAR FURNACE CONSISTING OF 2 SECTIONS, THE FIRST FOR COKING AT 25-800DEGREES, AND THE SECOND FOR PYROLYSIS OF GASEOUS PRODUCTS FROM THE 1ST SECTION. THE MAIN FACTOR DETG. THE QUANT. COMPN. OF THE PRODUCTS WAS THE TEMP. OF PYROLYSIS OF THE GASES. WITH INCREASED TEMP., THE BENZENE AND THIOPHENE IN THE TOTAL GAS INCREASED. THE CONTENTS OF CYCLOPENTADIENE, AND THE METHYL DERIV. OF BENZENE AND THIOPHENE PASSED THROUGH A MAX. WITH TEMP. FACILITY: UKR. UGLEKHIM. INST., KHARKOV, USSR.

UNCLASSIFIED



USSR

UDC 595.70.591.56.577.3.612.014.4

MARIKOVSKIY, P. I.

"Arthropods -- Indicators of Biological Radiation of the Human Brain"

Alma-Ata, Vostnik Akademii Nauk Kazakhskoy SSR, No 6, 1970, pp 28-31

Abstract: Unlike such taiga ticks as *Ixodes persulcatus*, *Hemaphysalis concinna*, and *Dermacentor sylvarum*, the desert ticks *Hyalomma asiaticum* and *Hyalomma plumbeum* do not find their warm-blooded hosts by the sense of smell. Nor do the latter two inhabitants of Central Asian deserts use vision or any other sense organ. They pursue human beings apparently because of the attraction created by emanations from the brain. They cease to do so when the head is covered with a thin sheet of metal. But covering the body with metal while the head remains exposed does not have this effect. The same phenomenon was observed in countless experiments.

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UR 0431

AP9049813

PRIMARY SOURCE: Izvestiya. AN ArmSSR. Fizika, Vol 4, Nr 1,  
pp 46-52

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SHOWER EFFICIENCY OF SPARK CHAMBERS AT LONG  
HIGH VOLTAGE PULSE DELAY

N. Kh. BOSTANDJIAN, G. H. MARIKYAN and K. A. MATEVOSSIAN

The shower efficiency of spark chamber filled with "specially pure" neon gas or mixed with Ne+alcohol vapour is determined. It is found that the greater the per cent of alcohol vapour in the chamber, the faster the shower efficiency of the spark chamber decreases as the delay of high voltage pulse increases. This phenomenon is more noticeable after the uninterrupted work of the chamber.

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19

1948 0124

UDC: 621.391:519.2

USSR

MARIMONT, Yu. I.

"Computing the Tolerance of the Group Time Delay Characteristic in the High-Frequency channel of Multichannel Radio Relay Equipment"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 1, pp 38-45 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A51)

Translation: The average power of transient noise in a set of characteristics of group time delay (GTD) high-frequency channels limited by the tolerance in the height of the band pass, in approximating the characteristic of a power polynomial, is computed by the quasi-stationary method. The average power of transient noise is estimated in the upper telephone channel. This power results from the transmission along the high-frequency channel of the radio relay line, with frequency modulation and frequency multiplexing involving independent and repeated GPD characteristics correction in individual transceivers. Resume

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- 79 -

USSR

Communications

UDC: 621.396.4

MARIMONT, Yu. I.

"Computing the Tolerance in the Amplitude-Frequency Characteristic of a High-Frequency Channel in Multichannel Radio Relay Apparatus"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 2, pp 28-33 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D464)

Translation: A formula is obtained for computing the psophometric power of transient noise averaged over a set of amplitude-frequency characteristics limited by tolerance to nonequilibrium. The average power of the transient noise in the tolerance for a constant range in the passband limits is examined. Resume

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Acc. Nr: AP0037230

M Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena, Truda i Professional'nyye  
Zabolevaniya, 1970, Nr 2, pp 28-31

CLINICO-PHYSIOLOGICAL CHARACTERISTIC OF DUST-INDUCED BRONCHITIS  
IN UNDERGROUND COAL MINERS

A. M. Marin, A. O. Navakatskiy

Summary

In 70 patients with chronic dust-induced bronchitis of long standing the disease was investigated in its dynamics. Transformation into (in 17.1%) and suspected pneumoconiosis (in 8.6% of cases) were noted after a lapse of 2--5 years. In patients with bronchitis exhibiting no signs of pulmonary fibrosis, non-diseased miners and practically healthy individuals with no service record in an atmospheric environment of high dustiness subject to determination were: vital capacity of the lungs (VCL), residual air (RA), total lung capacity (TLC), maximum volumetric expiration rate (MVER) and maximum volumetric inspiration rate (MVir), which, when measured, were contrasted against the due values. A distinct rise of RA (in absolute figures, in percentage to TLC and to the due TLC) and an appreciable fall of the VLC, MVER and MVIR were recorded in patients suffering from chronic bronchitis. Increased RA figures were registered also in non-diseased miners with long service-record, which bears proof to an early development of manifestations typical of emphysema and deranged pulmonary ventilation.

// REEL/FRAME

19730154

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1/2 017 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--INFLUENCE OF ANTIOXIDANTS ON THE QUALITY OF OILY FISH MEAL DURING  
STORAGE -U-  
AUTHOR--MARIN, G.N. *M*  
COUNTRY OF INFO--USSR  
SOURCE--RYB. KHGZ. 1970, 46(3), 62-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--FISH, FOOD TECHNOLOGY, ANTIOXIDANT ADDITIVE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3009/0480 STEP NO--UR/0337/70/046/003/0062/0064  
CIRC ACCESSION NO--AP0139269  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 017

CIRC ACCESSION NO--AP0139269

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE ADDN. OF 0.09PERCENT BUTYLATED  
HYDROXYTOLUENE TO FISH MEAL INCREASED ITS STABILITY TOWARDS OXIDN. AND  
ITS STORAGE TIME AT 15-27DEGREES. THE USE OF SACS WITH POLYETHYLENE  
LINING IS RECOMMENDED FOR FISH METAL STORAGE. FACILITY:  
TEKFNCL. LAB., TSKTB, USSR.

UNCLASSIFIED

USSR

KOBUCHIYEVSKIY, I. D. and MARIN, N. A.

"The Throughput Capacity of Linear Dynamic Systems"

Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1 [Information Methods in Testing and Measurement Control Systems. Volume 1 -- Collection of Works], Vladivostok, 1972, pp 152-157 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V415)

Translation: A study is made of a dynamic system described by the linear differential equation

$$\dot{x}(t) = A(t)x(t) + B(t)u(t), \quad 0 \leq t \leq T$$

where  $x(t)$  is an  $n$ -dimensional vector function (output signals),  $u(t)$  are  $m$ -dimensional vector functions (input signals),  $A(t)$  and  $B(t)$  are continuous matrices measuring  $n \times n$  and  $m \times n$  respectively. Based on known formulas for the  $\epsilon$ -capacity of compact sets of functions satisfying the Lipshits condition (RZHMAT, 1960, 5081), formulas are produced for the  $\epsilon$ -capacity of sets of output signals of the dynamic system studied, when the input signals are either piecewise-continuous and evenly limited in even metrics, or belong to space  $L_p[0, T]$  and are evenly limited in the metrics of space  $L_p[0, T]$ ,  $p = 1; 2$ .

Yu. Lin'kov



USSR

UDC: 51:621.391

KOBUCHIYEVSKIY, I. D., MARIN, N. A.

"On the Throughput of Linear Dynamic Systems"

Vladivostok, Inform. metody v sistemakh upr. izmereniy i kontrolya--sbornik (Information Methods in Monitoring and Measurement Control Systems--collection of works), t. 1, 1972, pp 152-157 (from RZh-Matematika, No 10, Oct 73, abstract No 10V415 by Yu. Lin'kov)

Translation: The authors examine a dynamic system described by the linear differential equation

$$\dot{x}(t) = A(t)x(t) + B(t)u(t), \quad 0 \leq t \leq T$$

where  $x(t)$  are  $n$ -dimensional vector functions (output signals),  $u(t)$  are  $m$ -dimensional vector functions (input signals),  $A(t)$  and  $B(t)$  are continuous matrices of size  $n \times n$  and  $m \times m$  respectively. On the basis of conventional formulas for the  $\epsilon$ -capacity of compact sets of functions satisfying the Lipschitz condition (RZh-Mat, 1960, 5081), formulas are derived for the  $\epsilon$ -capacity of the set of output signals of the given dynamic system when the input signals are either piecewise-continuous and uniformly bounded in

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USSR

KOBUCHIYEVSKIY, I. D., MARIN, N. A., Inform. metody v sistemakh upr. izmereniy i kontrolya, t. 1, 1972, pp 152-157

a uniform metric or belong to the space  $L_p[0,T]$  and are uniformly bounded in the metric of space  $L_p[0,T]$ ,  $p=1, 2$ .

2/2

- 33 -

USSR

UDC 623.621.391.325:621.37/39

ATRAZHEV, M. P., Candidate of Technical Sciences, IL'IN, V. A., Candidate of Technical Sciences, and MAR'IN, N. P., Doctor of Technical Sciences

Bor'ba c Radioelektronnyimi Sredstvami (Military Electronics Countermeasures), Moscow, "Voenizdat," 1972, 272 pp

Translation: Annotation: This book, written on the basis of unclassified foreign sources, briefly characterizes the contemporary air defense status of the capitalist countries and examines countermeasure techniques in this defense. The procedures for applying various types of active countermeasures are listed and the gear they utilize is described. The methods of obtaining passive jamming, false targets, and decoys are considered. The basic techniques for surveillance of hostile electronics systems are presented along with procedures for appraising communications countermeasure effectiveness.

The book is intended for the broad circle of readers interested in the fundamentals of electronics countermeasures.

Candidate of Technical Sciences V. A. Il'in wrote chapters 1-3 and section 6 of chapter 4. Doctor of Technical Sciences N. P. Mar'in wrote chapters 4-6, and Candidate of Technical Sciences M. P. Atrazhev wrote chapters 7-9.

Table of Contents:

Page

Preface

3

1/5

USSR

ATRAZHEV, M. P. and IL'IN, V. A., Bor'ba c Radioelektronnyimi Sredstvami, 1972, 272 pp

|  |    |
|--|----|
| Chapter I. General Principles of Employing Electronics Systems in the Military Air Defense of Capitalist Countries | 6  |
| 1. General Characterization of Air Defense   | 6  |
| 2. Radar Warning Stations  | 11 |
| 3. Target Direction, Range, and Velocity Tracking Radars   | 21 |
| 4. Peculiarities of Near-Space Radiowave Propagation   | 36 |
| 5. Categories of Electronics Countermeasures   | 39 |
| Chapter II. Active Electronics Measures Against Warning and Guidance Radar Stations                                | 42 |
| 1. Continuous-Wave Noise Jamming   | 42 |
| 2. Block Diagrams of Continuous-Wave Noise Jammers   | 50 |
| 3. Narrowband Spot Jamming With Noise  | 55 |
| 4. Pulsed Jamming  | 58 |
| 5. Unmodulated and Tone-Modulated Continuous-Wave Jamming  | 63 |
| Chapter III. Active Measures for Jamming Radar Stations Operating in Automatic Target-Tracking Modes               | 66 |
| 1. Interference Signals Modulated at the Antenna Scan Frequency of the Hostile Radar                               | 66 |
| 2/5 2. Jamming Radars With Known Scan Frequencies  | 72 |

- 64 -

USSR

ATPAZHEV, M. P. and IL'IN, V. A., Bor'ba c Radioelektronnyimi Sredstvami, 1972,  
272 pp

|   |     |
|---|-----|
| 3. Noise Barrage Jamming at the Scan Frequency  | 74  |
| 4. Jamming at the Lobing Frequency  | 78  |
| 5. Jamming the Range Circuit of Pulsed Automatic Tracking Radars [Range-Gate Stealers]                | 80  |
| 6. Jamming the Velocity Circuit of Continuous-Wave Automatic Tracking Radars [Velocity-Gate Stealers] | 85  |
| 7. Active Electronics Measures Against Control and Communications Radio Links                         | 88  |
| 8. Sweepthrough Jamming   | 92  |
| Chapter IV. Passive Electronics Countermeasure Methods  | 98  |
| 1. General Passive Jamming Characteristics  | 98  |
| 2. Radiowave Scattering by a Half-Wave Dipole (Chaff) and Long Wire                                   | 99  |
| 3. Radiowave Scattering Properties of a Chaff Cloud and Chaff Corridor                                | 103 |
| 4. Using Chaff to Jam Warning and Guidance Radar Stations   | 108 |
| 5. Using Chaff to Jam Target Direction and Range Radar Tracking Stations                              | 116 |
| 6. Methods of Protecting Radars Against Passive Jamming   | 124 |

3/5

USSR

ATRAZHEV, M. P. and IL'IN, V. A., Bor'ba c Radioelektronnyimi Sredstvami, 1972,  
272 pp

|   |     |
|---|-----|
| 7. Passive Deception of Reentry Warning Radars                                  | 131 |
| 8. Interference Noises Produced by a Jet Engine Wake                            | 134 |
| 9. Jamming Obtained by Bursts of Nuclear Ammunition                             | 137 |
| Chapter V. False Targets and Radar Decoys                                       | 152 |
| 1. General Information About Radar Decoys                                       | 152 |
| 2. The Radar Cross Section of Decoys  | 158 |
| 3. False Targets Based on Plasma Formations                                     | 162 |
| Chapter VI. Reducing the Radar Observability of an Object                       | 165 |
| 1. Methods of Lowering an Object's Radar Cross Section                          | 165 |
| 2. Properties and Methods of Using Absorbing Coatings                           | 169 |
| 3. Lowering the Radar Cross Section Through Proper Vehicle Shaping              | 172 |
| 4. The Effect of a Plasma Sheath on the Radar Cross Section of an Object        | 180 |
| Chapter VII. Selecting Methods of Destroying and Jamming Electronics Facilities | 184 |
| 1. Destroying Electronics Installations   | 184 |
| 2. The Role of Combat Formations and Evasive Maneuvering                        | 187 |
| 3. Integrated Use of Diverse Electronics Countermeasures                        | 190 |

4/5

- 65 -

USSR

ATRAZHEV, M. P. and IL'IN, V. A., Bor'ba c Radioelektronnyimi Sredstvami, 1972, 272 pp

|   |     |
|---|-----|
| Chapter VIII. Electronics Intelligence Systems  | 194 |
| 1. General Knowledge About Electronics Intelligence Aids  | 194 |
| 2. Data Obtained Through Electronics Surveillance   | 197 |
| 3. Surveillance of Radio Signals  | 199 |
| 4. Separation of Signals  | 202 |
| 5. Measuring the Signal Carrier Frequency   | 208 |
| 6. Measuring the Direction of a Radiation Emitter   | 215 |
| 7. Measuring Modulation Characteristics   | 221 |
| 8. Recording Systems  | 224 |
| 9. The Range of Electronics Reconnaissance Coverage   | 230 |
| 10. Characteristics of Electronics Intelligence Stations  | 233 |
| Chapter IX. Estimating the Effectiveness of Electronics Countermeasures                               | 240 |
| 1. The General Concept of Appraising Jamming Effectiveness  | 240 |
| 2. Tactical Factors in Radio Jamming Effectiveness for Coordinated Troop and Weapons Control Channels | 240 |
| 3. Determining the Zones for Jamming Electronic Facilities  | 251 |
| 4. The Power Factor in Jamming Effectiveness  | 264 |
| Bibliography  | 267 |

5/5

1/3 048 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SPACECRAFT RENDEZVOUS CONTROL WITH MINIMAL FUEL CONSUMPTION -U-  
AUTHOR--MARIN, O.M. *M*  
COUNTRY OF INFO--USSR, FRANCE  
SOURCE--AUTOMATIC CONTROL IN SPACE, 3RD I F A C SYMPOSIUM, TOULOUSE,  
FRANCE, MARCH 2ND-6TH, 1970  
DATE PUBLISHED-----70

SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--FUEL CONSUMPTION, SPACECRAFT RENDEZVOUS, TRAJECTORY  
OPTIMIZATION, FUEL SUPPLY CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/0039

STEP NO--FR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0129327

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--27NOV70

2/3 048

CIRC ACCESSION NO--AT0129327

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MINIMAL POWER CONSUMPTION IN SPACECRAFT RENDEZVOUS IS A MAJOR REQUIREMENT OF SUCH SYSTEMS. HOWEVER, FUEL CONSUMPTION SHOULD NOT BE DECREASED AT THE EXPENSE OF ACCURACY IN THE FINAL CONDITIONS OF RENDEZVOUS. THE PAPER DISCUSSES A RENDEZVOUS CONTROL TECHNIQUE WHICH SEEMS TO ENSURE BOTH MINIMAL FUEL CONSUMPTION AND HIGH ACCURACY OF RENDEZVOUS. AT THE START OF THE APPROACH THE TRAJECTORY IS CORRECTED WITH THE ENGINE OF THE "ACTIVE" VEHICLE; THE MAGNITUDE AND THE DIRECTION OF THE THRUST PULSE IS FOUND FROM THE CONDITIONS OF THE FLIGHT OF THE RENDEZVOUS POINT ALONG A PATH, OPTIMAL IN TERMS OF POWER CONSUMPTION. THEN ADDITIONAL CORRECTIONS ARE MADE AT CERTAIN TIMES. NEAR THE RENDEZVOUS POINT THE CORRECTIONS ARE MADE SO THAT THE TRAJECTORY IS KEPT WITHIN THE ESTABLISHED PHASE CONSTRAINTS OF THE TYPE  $P$  PRIME EQUALS  $F(W, P)$ . THE SHAPE OF PHASE CONSTRAINT IS FOUND DEPENDING ON THE ACCURACY REQUIREMENTS OF THE RENDEZVOUS AT MINIMAL FLOW OF RECOIL MASS. IN ORDER TO DECREASE THE EFFECT OF ERRORS IN FLIGHT CONTROL AND IN MEASUREMENTS OF THE RELATIVE POSITION IN TERMS OF ACCURACY AND POWER CHARACTERISTICS, STATISTICAL OPTIMIZATION IS SUGGESTED WHICH HELPS TO FIND THE MAGNITUDE OF CORRECTION PULSES AND PARAMETERS OF PHASE CONSTRAINTS. IN THE OPTIMIZATION PROCESS, WALD'S THEORY OF STATISTICAL SOLUTIONS WAS USED. TO FIND THE DEGREE OF OPTIMALITY OF THE SUGGESTED CONTROL TECHNIQUE THIS TECHNIQUE IS COMPARED WITH THE OPTIMAL CONTROL PROGRAM, DEVELOPED ALONG THE LINES SET BY V. F. KROTOV'S THEORY. RESULTS OF DIGITAL COMPUTATIONS PERFORMED IN MATHEMATICAL SIMULATION ARE PRESENTED.

UNCLASSIFIED

3/3 048

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0129327

ABSTRACT/EXTRACT--IT HAS BEEN SHOWN THAT THE RENDEZVOUS TECHNIQUE  
SUGGESTED IS NEAR OPTIMAL IN TERMS OF POWER CONSUMPTION AND ACCURACY OF  
THE MANEUVER.

UNCLASSIFIED

1/2 056 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--RENDEZVOUS CONTROL AT MINIMAL PROPELLANT CONSUMPTION -U-

AUTHOR--MARIN, O.M.

COUNTRY OF INFO--USSR, FRANCE

SOURCE--3RD IFAC SYMPOSIUM ON SPACE CONTROL, TOULOUSE, FRANCE, MARCH 1970

DATE PUBLISHED-----70

SUBJECT AREAS--SPACE TECHNOLOGY, PROPULSION AND FUELS

TOPIC TAGS--ALGORITHM, SPACECRAFT RENDEZVOUS, SPECIFIC PROPELLANT  
CONSUMPTION, SPACECRAFT CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3009/0212

STEP NO--FR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0139068

UNCLASSIFIED

2/2 056

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0139068

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MINIMAL POWER CONSUMPTION IN RENDEZVOUS CONTROL IS A MAJOR REQUIREMENT TO SYSTEMS, ESPECIALLY SO BECAUSE REDUCED CONSUMPTION SHOULD NOT LEAD TO DETERIORATION IN MAINTAINING RENDEZVOUS TERMINAL PHASE CONDITIONS. THE PAPER PROPOSES AN ALGORITHM TO CONTROL A RENDEZVOUS AT BOTH MINIMAL PROPELLANT CONSUMPTION AND HIGH ACCURACY OF MANEUVERING.

UNCLASSIFIED

USSR

UDC 911.3:616.981.452

IVANOV, V. A., KRAMINSKIY, V. A., and MARIN, S. N.

"Tactics of Epidemiological Examination of Natural Foci of the Plague"

V sb. Probl. osob. opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 41-44 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.108) by V. Dobrokhotov.

Translation: Epidemiological reconnaissance of the territory includes the following tasks: epizootiological and zooparasitological examination, epidemiological monitoring of the population, epidemo-geographic study of foci and observation of the disease incidence among camels so as not to transfer the disease to them. The chief problems for each one of these areas are outlined. Tactical approaches to epidemiological study are determined by characteristics of epizootic activity at different foci. In addition to this it is necessary to distinguish natural foci with stable activity (northern desert subzone) and foci with periodic activity (southern subzone).

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USSR

UDC 621.372.831.1

LAGEREV, L. I., BAZARNYY, Ye. M., ISAKOV, V. N., MAR'IN, V. I.

"New Waveguide Couplings"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1970, No 1, pp 121-123 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B177)

Translation: The authors consider two types of circular waveguide couplings made by the cold pressing method -- a permanent coupling (a sleeve into whose opening the sections to be joined are pressed) and a detachable coupling (a flange unit). One such flange coupling is a rapid-action unit made up of two flanges connected by bolts and a drift pin. The reliability and simplicity of the new couplings is noted. Three illustrations. N. S.

USSR

UDC: 621.385.6

ZHARNENKOV, S. V., ZAKHAROV, V. P., POPOV, A. N., ~~MARTIN, V. P.~~

"A Magnetron Converter Which Changes Microwave Power to DC Power"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, Jun 72, Author's Certificate No 328805, Division H, filed 7 Jan 70, published 24 May 72, p 249

Translation: This Author's Certificate introduces: 1. A magnetron converter which changes microwave power to DC power. The device contains an electron source, and an interaction space which is closed in the azimuthal direction and houses a positive electrode. As a distinguishing feature of the patent, in order to improve the efficiency of microwave energy conversion, the source of electrons is closed with respect to the azimuth, and is located outside the interaction space coaxially with the central electrode. 2. A modification of the converter distinguished by the fact that the electron source is made in the form of a magnetron end gun of inverted design. 3. A modification of the converter described in point 1. distinguished by the fact that the electron source is made in the form of two magnetron end guns of inverted design.

1/1

USSR

UDC: 621.385.6

MARIN, V. P., MAKAROV, V. N.

"An Amplifier of the Magnetron Type"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 7, Mar 72, Author's Certificate No 329597, Division G, filed 15 Jun 70,  
published 9 Feb 72, pp 208-209

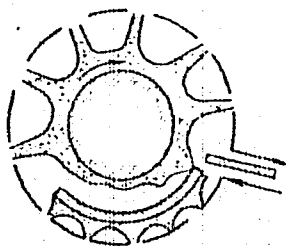
Translation: This Author's Certificate introduces an amplifier of the magnetron type which contains an open decelerating system wound into a ring with the ends connected to the input and output of the device, a cylindrical cathode placed concentrically inside the decelerating system, forming an interaction space together with the decelerating system. As a distinguishing feature of the patent, the amplification factor is increased by introducing an auxiliary electrode into the interaction space which forms a drift region in combination with the cathode. The surface of the electrode which faces the decelerating system is coated with an emitting material.

1/2



USSR

MARIN, V. P., MAKAROV, V. N., USSR Author's Certificate No 329597



2/2

USSR

UDC: 621.372.86(088.6)

~~MARTIN, V. P.~~, ZAKHAROV, V. P., GOLOVENKOV, V. F., YEROSHEV, V. K.

"A Waveguide Port for Tapping Energy"

USSR Author's Certificate No 265294, filed 11 Dec 67, published 26 Jun 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B176 P)

Translation: The proposed waveguide energy-tapping port for electronic instruments in the SHF range contains a flat ceramic insulator. To reduce dielectric losses, improve the reliability of the metal-to-ceramic seal and simplify the process of manufacture, the port contains a metal ring support flange with reinforcing ribs spaced at equal angles along the radii. The dielectric ceramic insulator is made up of several sectors in a number equal to the number of ribs. Each ceramic sector is vacuum tight against two adjacent ribs and against the part of the support flange between them. To improve heat transfer, the radial reinforcement ribs have internal channels for liquid coolant. Two illustrations. Resumé.

USSR

UDC 621.385.6

MARIN, V. P., MAKAROV, V. N., SMIRNOV, N. A.

"Study of Debunching of Electron Stream in Drift Space of Type M Amplifier"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 1, pp 132-133 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A142)

Translation: The results are presented of an experimental study of the effect of the length of the drift space of Type M backward wave amplifiers with a cathode in the interaction space at the debunching of the electron stream. It is shown that with the length of the drift space more than  $3 \lambda_3$ , grouping of the electrons is not complete. 2 ref. Author's Abstract.

1/1

USSR

UDC 621.385.032:621.385.642.3 (088.8)

ALEKSANDROV, V.A., ~~MARIN, V.P.~~, FUSHKAREV, A.G.

"Decelerating System"

USSR Author's Certificate No 261587, filed 29 July 67, published 13 May 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A1C6P)

Translation: The decelerating system of an inverted  $\pi$ -type microwave device contains strapped resonators  $3/4 \lambda_0$  long and nonstrapped  $1/4 \lambda_0$  long, and a stabilizing circuit. With the object of increasing the effectiveness of liquid cooling of the lamella, with a decrease in length of the wave being generated, and an increase of the intrinsic Q-factor of the system, the nonstrapped resonators are united into groups which have a common metal base in which cooling channels are located. The number of groups is determined by the formula  $N/n$  where  $N$  is the total number of resonators, and  $n$  is the positive whole number selected from the condition  $N/2 > n > 2$ . Summary.

1/1

USSR

UDC: 621.396.6.049.75.002

MAR'IN, Yu. A., PANOV, A. N.

"Automated Inspection of Printed-Circuit Boards"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry--collection of works), vyp. 4, Moscow, 1972, pp 38-41 (from RZh--Radiotekhnika, No 8, Aug 72, Abstract No 8V327)

Translation: The paper deals with methods of checking printed-circuit boards. The methods are compared, and structural principles for designing automatic checking equipment are outlined. Resumé.

1/1

USSR

UDC 621.396.6.049.75.002

PESKOV, M. I., PIGARIN, Ye. G., MAR'IN, Yu. A.

"High-Speed Automatic Equipment for Making Photographic Positives of Multilayered Circuit Boards"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry—collection of works), vyp 7, Moscow, 1971, pp 31-34 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11V383)

Translation: The paper describes the control circuitry of equipment for automatic reproduction of photopositives of printed circuit boards from information recorded on punched cards. A buffer memory is added to the control device, which increases the productivity of the equipment by reproducing information on a complete line of the drawing on the photographic positive in the line-by-line method of reproduction. The quantity of information on the punched tapes was reduced by using the principle of separate drawing of horizontal and vertical lines. Ye. M.

1/1

UDC 546.681.181.1:541.67

USSR

GLORIOZOVA, R. I., IGNATKIN, A. D., MARINA, I. I., and KASHCHINSKIY, A. YA., Giredmet, State Scientific Research and Planning Institute of Rare Metals

"Electrical Properties of GaP Single Crystals"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1768-1771

Abstract: The article describes results of a study of the electrical properties of GaP single crystals obtained by the floating zone method. Undoped, as well as tellurium- and zinc-doped single crystals were used. The Hall effect and conductance were measured at 77-400° K. Undoped crystals have n-type conductivity and a carrier concentration at room temperature of  $10^{15}$ - $10^7$  cm<sup>-3</sup>. The activation energy of the residual uncontrolled centers for them is 0.24 and 0.7 ev. The carrier concentration of the doped crystals is  $10^{17}$ - $10^{18}$  cm<sup>-3</sup>. The ionization energy of tellurium varies according to the Te concentration. The

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USSR

GLORIOZOVA, R. I., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1768-1771

ionization energy of zinc is  $\sim 0.05$  ev. The electron and hole mobility is  $\sim 80-150$  sq cm/volt sec at room temperature,  $250-550$  sq cm/volt sec at  $100^\circ$  K, and varies as  $T^{-1.5}$  in the high temperature region.

2/2



1/2 029 UNCLASSIFIED PROCESSING DATE--20NDV70  
TITLE--EFFECT OF THE MECHANISM OF DENDRITIC GROWTH ON IMPURITY  
HETEROGENEITY IN GALLIUM PHOSPHIDE CRYSTALS -U-  
AUTHOR--(02)--GRACHEV, V.M., ~~MARINA, L.I.~~ M  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 392-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--GALLIUM COMPOUND, PHOSPHIDE, CRYSTAL GROWTH,  
ELECTROLUMINESCENCE, CRYSTAL IMPURITY, ETCHED CRYSTAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0325 STEP NO--UR/007C/70/015/002/0392/0393  
CIRC ACCESSION NO--AP0124084  
UNCLASSIFIED

IMPURITIES THAN THE REGION OF THE (111) PLANE. A REGION DISPLAYING A GREEN GLOW IN THE ELECTROLUMINESCENCE AND 5-8 MU). A REGION DISPLAYING A GREEN GLOW IN THE ELECTROLUMINESCENCE AND CHARACTERIZED BY HIGH IMPURITY SEGREGATION ALLOWING THE FORMATION OF THE P-N TRANSITIONS WAS OBSD. THE FORMATION OF THIS REGION WAS ASCRIBED TO A MECHANISM OF LAMINAR GROWTH OF THE (111) PLANE.

UNCLASSIFIED

MARINA, L.I.

SPRS 573 08

6.73

4

VI. STUDY OF THE BEHAVIOR OF TELLURIUM IN CALCIUM PHOSPHIDE DURING THE PROCESS OF HORIZONTAL ZONE MELTING

Article by V. P. Shubolova, L. I. Marina, Moscow; *Proceedings of the USSR Academy of Sciences Series A: Physical-Mathematical Sciences*, 1972, p 87

The method of radioactive indicators was used to study the tellurium distribution with respect to length of the gallium phosphide crystals obtained during the process of horizontal zone melting.

The effective distribution coefficients of the tellurium were determined experimentally for crystallization rates of 0.038, 0.10 and 0.15 cm/sec equal to 0.049, 0.061 and 0.077 respectively and also the equilibrium distribution coefficient equal to 0.041. The tellurium substitution factor was defined under the conditions of our experiment as being equal to  $(1.7-2.00) \cdot 10^{-4}$  cm/sec.

- 86 -

APPROVED FOR RELEASE: 09/01/2001

PROCESSING DATE--20NOV70  
CIA-RDP86-00513R002201920017-7

2/2 029  
CIRC ACCESSION NO--AP0124034

ABSTRACT. DIFFERENCES IN THE RATE OF GROWTH AND DIFFICULTIES. IN

1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--TUMOURS OF THE TESTIS IN ABDOMINAL CRYPTORCHISM -U-

AUTHOR--MARINBAKH, YE.B.

COUNTRY OF INFO--USSR

SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 44-48

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--REPRODUCTIVE SYSTEM, TUMOR, ABDOMEN, RADIOTHERAPY,  
CHEMOTHERAPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0167

STEP NO--UR/0600/70/000/003/0044/0048

CIRC ACCESSION NO--AP0120867

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16GCT70

2/2 018

CIRC ACCESSION NO--AP0120867

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TOTAL OF 150 PATIENTS WITH TUMOURS OF THE TESTIS (18 WERE SUFFERING FROM ABDOMINAL CRYPTORCHISM) WERE TREATED IN THE HOSPITAL IN 1961-1968. SIXTEEN OF THE PATIENTS HAD TUMOUR OF THE TESTIS RETAINED IN THE ABDOMINAL CAVITY, AND TWO, OF THE TESTIS LOCATED IN THE SCROTUM OR THE INGUINAL CANAL, THE OTHER TESTIS, FREE OF TUMOUR, BEING LOCALIZED IN THE ABDOMINAL CAVITY. THE MAJORITY OF THE TUMOURS (13 OF 16) HAD A STRUCTURE OF CLASSIC SEMINOMA. A METHOD OF TREATMENT APPROVED AT THE INSTITUTE CONSISTED OF 3 STAGES: THE I STAGE, IRRADIATION OF THE TUMOUR FOR RENDERING IT OPERABLE; THE II STAGE, LAPARATOMY, REMOVAL OF THE TUMOUR; THE III STAGE, CHEMOTHERAPY. OF 16 PATIENTS 10 WERE CURED (WELL FROM 1 TO 8 YEARS FROM THE BEGINNING OF THE TREATMENT). FACILITY: OTD. ABDOMINAL'NOY ONKOLOGII INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AMN SSSR, MOSCOW.

UNCLASSIFIED

5

USSR

ZAPEVALOV, P. P., MILASHCHENKO, N. Z., PADZINOVSKIY, I. P., GORTLEVSKIY, A. A.,  
MARINCHENKO, M. Z., YAKOVLEVA, L. I., YEMEL'YANOV, I. M.

"Results of Field Testing of Various Emulsions and Forms of 2, 4-D Butylester"

Nauch. Tr. Omsk. S-Kh. In-t. [Scientific Works of Omsk Agricultural Institute],  
No 84, 1971, pp 129-131. (Translated from Referativnyy Zhurnal Khimiy, No 4,  
Moscow, 1972, Abstract No 4N693 by T. A. Belyayeva).

Translation: In 1969, experiments were performed to compare the technical effectiveness of various 2, 4-D emulsions under field conditions when sprayed from the air (dose 0.4 kg/ha). Products used were: 1. 2,4-D -- technical preparate +1% OP-10 emulsifier; preparation of the emulsion was by spraying the preparate into water; 2. 2,4-D -- technical preparate +3% OP-10, spraying method; 3. 2,4-D -- "A" form (60% 2,4-D butylester, 20% OP-7, 20% diesel fuel); 4. 2,4-D type "B" (60, 10 and 30 % respectively); 5. 2, 4-D -- "C" form (60, 5 and 35 % respectively); 6. 2,4-D -- technical preparate. The effects of the herbicide were evaluated on the basis of the quantity and weight of perennial weed shoots and the wheat harvest. Versions 1 and 2 give the best results.

1/1

Thin Films

USSR

UDC 546.48'22:539.238

PALATNIK, L. S., NABOKA, M. N., and MARINCHEVA, V. YE., Khar'kov Polytechnical Institute imeni V. I. Lenin

"Influence of Production Conditions on Crystalline Quality of CdS Films"

Moscow, Neorganicheskiye Materialy, Vol 6, No 8, Aug 70, pp 1526-1527

Abstract: Electronography, X-ray diffractometry, and optical spectrometry are used to study the influence of the molecular composition of the gaseous  $m_1$  phase, rate of condensation  $\omega$ , substrate temperature  $t_{sub}$ , and condensation angle  $\phi$  on the structure and optical properties of thin condensed CdS layers. The results indicate that of all the parameters,  $\omega$ ,  $m_1$ , and  $\phi$ , the rate of precipitation has the greatest influence on the crystalline quality during formation of condensed CdS layers, controlling the content of excess cadmium atoms or sulfur vacancies.

1/1

1/2 046

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF THE BITUMINOUS COMPOUND CONTENT IN RAMJET FUELS

-U-  
AUTHOR--(03)-ENGLIN, B.A., MARINCHENKO, N.I., BORISOVA, S.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 53-5

DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS, CHEMISTRY

TOPIC TAGS--CHEMICAL PURIFICATION, CHEMICAL ANALYSIS, LIQUID FUEL, RAMJET  
ENGINE, ORGANIC SOLVENT, SOLVENT EXTRACTION, PENTANE, ISOMER, ALUMINUM  
OXIDE, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/2087

STEP NO--UR/0065/70/015/004/0053/0055

CIRC ACCESSION NO--AP0127460

UNCLASSIFIED



2/2 046

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127460

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE RESINOUS BITUMINOUS MATTER IN FUELS WERE ADSORBED WITH AL SUB2 O SUB3 OF 28-65 MESH, ACTIVATED 2 HR AT 800DEGREES. AFTER FILTERING THE FUEL, THE HYDROCARBONS WERE WASHED WITH ISO-C SUB5 H SUB12. THE BITUMINOUS MATTER WERE DESORBED WITH ACOH AND THEN WITH WATER. THE BULK SOLN. WAS SLOWLY NEUTRALIZED WITH 25PERCENT NH SUB3 SOLN. ADDED WITH NA SUB2 SO SUB4, AND EXTG. WITH ET SUB2 O. THE EXTN. LIQ. WAS EVAPD. ON A WATER BATH AND THE RESINOUS BITUMINOUS MATTERS OBTAINED WERE BROUGHT TO CONST. WT. IN VACUO. FOR SEPG. THE VARIOUS FRACTIONS OF THE BITUMINOUS MATTER, DIFFERING BY THEIR OXIDN. DEGREE, THEY WERE SUCCESSIVELY DESORBED WITH DIFFERENT DESORBENTS, THE LATTER BEING ACOH.

UNCLASSIFIED

USSR

UDC 546.621.86:559.235

PALATNIK, I. S., SCATOV, P. N., MARENCHIEVA, V. Ya., TOVSTONOG, V. A., and  
SHVYDKIY, I. D., Khar'kov Polytechnical Institute imeni V. I. Lenin

"Preparation and Properties of Condensed AlSb Films"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol. 1, No. 1,  
Jun 70, pp 1056-1059

Abstract: The article reports on an investigation of the aluminum phosphide  
of condensed AlSb films (thickness, 5-50 Å) produced by a method previously  
described by one of the authors (Palatnik). AVCO aluminum and (p) antimony  
were used for the preparation of AlSb. An analysis of the condensed films  
that when the method of synchronous condensation of the elements of the com-  
pound is used, films prepared at temperatures  $\geq 500^\circ\text{C}$  have semiconductor  
properties and the compound produced is close to the stoichiometric.

1/1

USSR

UDC 77

BELOUS, V. M., BUGRIYENKO, V. I., MARINCHIK, V. K.

"Study of Photoelectret and Thermoelectret States in Silver Halide Single Crystals and Photographic Emulsions"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Neserebryan materialy i neobychn. fotogr. protsessy (International Congress on Photographic Science, Moscow, 1970, Nonsilver Materials and Unusual Photographic Processes -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, 138-140 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1362)

Translation: Measurements of ion electrical conductivity of AgHal crystals made it possible to determine directly the activation energy for the displacement of the Ag<sup>+</sup> interstitial ion ( $\epsilon_1 = 0.11$  ev) and the cation vacancy ( $\epsilon_2 = 0.35$  ev) and to show that  $\epsilon_1$  and  $\epsilon_2$  are considerably less than  $\epsilon$  for thermal freeing of an electron from a deep capture level as is proposed in the Guerny-Mott mechanism. Irradiation of AgHal single crystals and photographic layers at low temperatures in an external field produces a photoelectret state in them; a study of thermally

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USSR

BELOUS, V. M., et al, Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Neserebryan materialy i neobychn. fotogr. protsessy, no place of publication given, Vneshtorgizdat, no year given, pp 138-140

induced currents upon heating makes it possible to determine, in view of the condition  $\epsilon_1 < \epsilon_2 < \epsilon$ , the preexponential factor  $\sigma_0$  and the activation energy of ion conductivity; the latter, as was expected, was equal to the previously found  $\epsilon_1$ . A similar result was obtained in studying thermally induced currents under heating of AgHal-crystals and photographic layers after producing a thermoelectret state in them: the measured values of  $\sigma_0$ ,  $\epsilon_1$ , and  $\epsilon_2$  coincided with those obtained earlier. Finally, measurements of the dependence of the photoelectret charge on temperature also led to values of  $\epsilon_1$  and  $\epsilon_2$  coinciding with those given above. In addition,  $\sigma_0$  for crystals and photographic layers differed considerably ( $\sigma_0$  was much higher for photographic layers) under any method of measurement. A. L. Kartuzhanskiy.

1/2 023 UNCLASSIFIED PROCESSING DATE--160CT70  
TITLE--THERMOELECTRET STATE OF PHOTOEMULSION LAYERS -U-  
AUTHOR-(03)-MARINCHIK, V.K., BUGRIYENKO, V.L., BELOUS, V.M.  
COUNTRY OF INFO--USSR *M*  
SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGK. 1970, 15(2), 151-3  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS  
TOPIC TAGS--PHOTOGRAPHIC EMULSION, THERMAL EFFECT, ELECTRET, LUMINESCENCE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1721 STEP NO--UR/0077/70/015/002/0151/0153  
CIRC ACCESSION NO--AP0118699  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118699  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. LAYERS OF NUCLEAR (YA 2 TYPE) AND OPTICAL AG(I, BR) EMULSIONS WITH A THICKNESS OF 50 MU WERE TESTED. THE THERMOELECTRET STATE WAS GENERATED BY APPLYING AN EXTERNAL VOLTAGE OF 1 KV AND SLOW COOLING OF THE SAMPLE TO THE TEMP. OF LIP. N. THEN THE FIELD WAS SWITCHED OFF AND TEMP. ROSE SLOWLY. THEN THE FIELD WAS SWITCHED OFF AND TEMPERATURE ROSE SLOWLY. THE DISCHARGE CURRENT WAS RECORDED WITH AN ELECTROMETRIC INTENSIFIER. A COMPLEX DEPENDENCE OF I ON T WAS FOUND. THE CHANGE IN THE DISCHARGE CURRENT WITH TEMP. IS INFLUENCED NOT ONLY BY THE PROCESSES TAKING PLACE IN THE EMULSION MICROCRYSTALS BUT ALSO BY THE ORDERING OF THE DIPOLE TEXTURE CREATED IN GELATINE. THE MAX. OF THE THERMODEPOLARIZATION CURRENT OBSO. AT 110 AND 170DEGREESK BELONG TO THE AG HALIDE MICROCRYSTALS AND ARE DUE TO THE SHIFT IN THE INTERSTITIAL AG IONS (PEAK AT 110DEGREESK) AND THE CATION VACANCIES (PEAK AT 170DEGREESK). THESE PEAKS ARE MOST CLEARLY VISIBLE IN THE NUCLEAR EMULSION BECAUSE THE AG HALIDE CONCN. IN IT IS MUCH HIGHER. THE MAX. OF THE THERMIONIC CURRENT AT THE SAME TEMPS. AT WHICH AN INTENSIVE DAMPING OF THE GREEN AND ORANGE RED LUMINESCENCE BANDS OF THE MICROCRYSTALS IS OBSO. ALSO SHOWS THAT THE DEPENDENCE OF THE LEVEL OF LUMINESCENCE OF THE BANDS ON TEMP. IS DETD. BY IONIC PROCESSES.

FACILITY: ODESS. GOS. UNIV., ODESSA, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--THERMOELECTRET STATE IN SILVER HALIDES -U-  
AUTHOR--(03)-BUGRIYENKO, V.I., MARINCHIK, V.K., BELQUS, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(1) 46-50  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--THERMAL EFFECT, SILVER COMPOUND, IODIDE, BROMIDE, CHLORIDE,  
THERMOELECTRIC PHENOMENON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1980/0237 STEP NO--UR/0181/70/012/001/0046/0050  
CIRC ACCESSION NO--AP0048516  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048516

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COOLING OF SINGLE CRYST. AGCL, AGCL(II), AGBR, AND AGBR(II) DOWN TO 77DEGREEK IN AN EXTERNAL ELEC. FIELD LEADS TO THE APPEARANCE OF A THERMOELECTRET STATE. RELATED TO THE SHIFT OF INTERSTITIAL AG IONS. HEATING OF OVER POLARIZED SPECIMENS IS ACCOMPANIED BY THE APPEARANCE AT 120-135DEGREEK OF A MAX. OF THERMALLY DEPOLARIZED CURRENT. FORMULAS ARE DEVELOPED WHICH ALLOW DETN. IN TERMS OF THE EXPTL. RESULTS, OF THE BASIC PARAMETERS WHICH CHARACTERIZE THE TEMP. DEPENDENCE OF IONIC ELEC. COND.



USSR

UDC 669.14.018.25:621.762

DOROFEYEV, Yu. G., PETROV, A. K., TSIPUNOV, A. G., USTIMENKO, V. I.  
MARINENKO, L. G., BATENEVA, M. K., and ORLOV, Yu. G., Novocherkassk Polytechnic  
Institute, Ukrainian Scientific Research Institute of Special Steel

"Structure and Properties of R18 Cermet Steel"

Kiev, Poroshkovaya Metallurgiya, No 2 (122), Feb 73, pp 56-60

Abstract: Results are presented of investigations of the production of R18 high-speed cermet steel from pulverized powders by the method of dynamic hot-pressing. Steel productions using plasticizers and production in thin-sheet metal containers are investigated. The established optimum conditions for dynamic hot-pressing of R18 steel are as follows: heating temperature 1250-1280°C, reduced pressing work 25-30 kgm/cm<sup>3</sup>, aging time 10 min. The produced steel was practically without pores, it had a homogeneous microgranular structure corresponding to the structure of hardened steel, and it was without carbide liquation. Cutters of R18 cermet steel had a resistance twice as high as that of standard R18 steel. Three figures, seven bibliographic references.

1/1

1.6

Composite Materials

USSR

UDC 620.178.3

LEBEDEV, T. A., MARINETS, T. K., and OSTASHEV, V. V., Leningrad Polytechnic Institute imeni Kalinin

"Criteria for Estimating Cyclic Strength of Composite Materials"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 8, Aug 73, pp 994-996

Abstract: Questions of forecasting cyclic strength of reinforced composite materials are considered. A coefficient of effective projection  $K$  is introduced which is based on the linear increase of cyclic strength of the material in relation to the increasing volumetric content of reinforcement. The area of coefficient projection lies between  $1 < K < 2$ . Results are presented of the investigation of two composite materials -- a specimen from steel 20 with a volumetric reinforcement content of 9 and 14% in the form of high-strength U9 cold-drawn 0.8 mm in diameter and a specimen with combined matrix -- steel 20 and titanium OT4 with the same reinforcement. One illustration, one table.

1/1

USSR

GORBACHEV, L. A., LEBEDEV, T. A., and MARINETS, T. K., Leningrad

"Periods of the Process of Fatigue Failure"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 70, pp 133-136

Abstract: An attempt is described to establish a relation between changes in the microstructure of a cycle-loaded metal (08 KP steel) and changes in the shape of the temperature curve. It was found that typical sections of this curve indirectly describe specific stages (periods) of fatigue failure. It is proposed that the process of fatigue failure be considered to comprise five periods. An assumption is made that the fatigue failure periods for one and the same metal, with respect to percentage and total service life, are constant magnitudes. The fatigue failure periods are as follows: 1) Incubation. Its duration depends on a number of factors, specifically on cycle stress. 2) Period of active formation of slip bands. 3) Period of local accumulation of damages and changes incurred during the first and second periods. This period

1/2

USSR

GORBACHEV, L. A., et al, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 70, pp 133-136

creates conditions for the generation and growth of a main crack. 4) Period of propagation and growth of the main crack. 5) Period of specimen failure. The duration of this period for specimens of small cross section is insignificant. All these periods are clearly distinguished on the temperature curve.

2/2

USSR

UDC 621.317.799:621.397.2

MARINETS, V. P., MELKHISEDEKOV, L. S., and SMERDOV, A. A., Physicomechanical Institute, Academy of Sciences Ukrainian SSR

"Television Device for the Automatic Recognition of Straight Lines and Faces"

USSR Authors' Certificate No 336673, Cl. G 06k 9/13, filed 23 Jun 72, published 21 Apr 72, related to USSR Authors' Certificate No 205895 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 14, 21 Apr 72, p 167)

Abstract: To eliminate the effect of the absolute brightness of objects on recognition, the scanning disk is made of a series of identical apertures of arbitrary shape, the dimensions of which are equal to the picture element. The apertures are arranged on the disk with a constant displacement of several picture elements for each subsequent aperture from the preceding aperture. An amplitude limiter is included between the output of the photoelectric transducer and the input of the band filter.

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CSO: 1863-W

- END -

- 86 -

UDC: 621.3.049.75

USSR

SAVEL'YEV, B. I., MARINGULOV, K. A., VASIL'YEV, P. P.

"A Method of Making Photo Templates for Multilayer Thin-Film Printed Circuit Boards"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, 'Tovarnyye Znaki, No 28,  
1970, Soviet Patent No 280594, Class 21, filed 7 Oct 68, p 52

Abstract: This Author's Certificate introduces a method of making photo templates for multilayer thin-film printed circuit boards. The procedure is based on the preparation of photo originals from a set of flat models of components and contact areas interconnected by layout elements which simulate printed-circuit conductors and are coated with a sticky substance. As a distinguishing feature of the patent, the process of making the photo templates is simplified by making the photo originals with direct and mirror reflection arrangement of the printed material, and using two parallel circular conductors as the layout elements. These conductors are of different colors, one of them being the same diameter as the printed-circuit conductor, while the diameter of the other is equal to the minimum clearance between adjacent printed-circuit conductors. The contact areas are centered on the photo originals of current-conducting layers (beginning with the second layer) by passing a needle through the center of the contact area of the first current-conducting layer, while holes are punched through the photo originals of insulating layers with a diameter equal to that of the holes in the printed-circuit board.

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- 10 -

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MARINGULOV, K. A., SAVEL'YEV, B. I.

"A Device for Connecting Microcircuits"

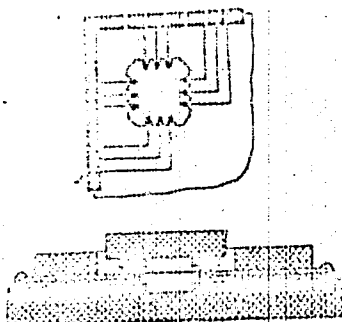
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,  
No 19, 1970, Author's Certificate No 272406, Filed 7 Oct 68, p 52

Abstract: This author's certificate introduces a device for connecting microcircuits together. The device contains a commutation plate whose contact areas coincide with those of the microcircuits. As a distinguishing feature of the patent, the quality of the contact connections is improved by placing an intermediate dielectric plate between the microcircuit and the commutation plate. On this plate is an aperture with bracket studs having contact areas on the ends which connect with the contact areas located on the periphery of the intermediate plate to connect the source of current to the contact areas of the bracket studs when a metal layer is galvanically plated on them.

1/2

USSR

MARINGULOV, K. A., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 19, 1970, Author's Certificate No 272466, Filed 7 Oct 68, p 52



2/2



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UDC 628.16.094.9

ZAGRAY, Ya. M., and MARINICH, V. K., Institute of Colloidal Chemistry and Chemistry of Water, Academy of Sciences, Ukrainian SSR

"Continuous Ion Exchange Removal of Ions From Solutions"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 2, 1973, pp 11-13

Abstract: Equipment was evaluated for a continuous ion exchange with countercurrent movement of the liquid being treated and the fluidized ion exchange material. The ion exchange resin is moved through three columns undergoing, in sequence, sorption, desorption, and washing. The rate of displacement of the ion exchange resin along the three stages of the process depends on the concentration and the ratio of the ions being removed from the treated solution. The diffusion and separation equipment in which the stream of liquid to be purified enters the purification column from the bottom has been designed, constructed and tested.

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Abstracting Service:

CHEMICAL ABST.

Ref. Code

6-70 UR0076

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115392h Thermodynamics of multicomponent heterogeneous systems. X. Variance of partially closed systems with chemical transformations. Storonkin, A. V.; Morinichev, A. N.; Zharov, V. T. (Leningrad Gos. Univ. im. Zhdanov, Leningrad, USSR). Zh. Fiz. Khim. 1970, 44(1), 83-7 (Russ). The rule for finding the no. of degrees of freedom (variance) in the title systems is  $f = n - k - 2 - r$ , where  $n$ ,  $k$ , and  $r$  are the nos. of components, linearly independent reversible chem. reactions, and of phases present in the system, resp. In case of any further conditions limiting the change of intensive properties,  $f = n - k + 2 - r - \beta$ , where  $\beta$  is the no. of relations causing the limitation. These equations are discussed for various types of thermodynamic equil. including the case of material isolation.

J. Flala

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CHELYSHEVA, A. A. (Aspirant), PROKOSHIN, D. A. (Doctor of Technical Sciences, Professor), RAKHSHTADT, A. G. (Doctor of Technical Sciences, Professor), FOMIN, V. V. (Doctor of Technical Sciences), GUREVICH, YA. B. (Candidate of Technical Sciences), MILYAKOV, A. P. (Engineer), and ~~MAKININ~~ <sup>MAKININ</sup>, A. A. (Candidate of Technical Sciences), Moscow Higher Technical School imeni N. E. Bauman

"Study of Hydroerosion Resistance of High Strength Chromium-Manganese-Silicon Steels"

Moscow, IVUZ Mashinostroyeniye, No 1, Jan 70, pp 117-122

Abstract: The article presents the study of properties of steels 40Kh3G6S and 50Kh3G6S after heat and heat-mechanical treatment. It is shown that the steels, after ordinary hardening, high-temperature heat-mechanical treatment (VTMO) and low-temperature heat-mechanical treatment (NTMO) plus low-temperature tempering possess a reduced value of yield point at high value of tensile strength. The low yield point is explained by the presence of a considerable quantity of residual austenite. In the process of deformation during determination of the tensile strength the residual austenite apparently is transformed into martensite and therefore the tensile strength reaches high values. The use of sub-zero treatment, which induces the transformation

1/2

USSR

CHELYSHEVA, A. A., et al., IVUZ Mashinostroyeniye, No 1, Jan 70, pp 117-122

of residual austenite into martensite, considerably increases the yield point from 67 kg/mm<sup>2</sup> to 140 kg/mm<sup>2</sup> after hardening in steel 40Kh3G6S with a small increase in the tensile strength. The comparison of mechanical properties of studied steels after hardening, VTMO, NTMO and low temperature tempering at equal quantity of residual austenite shows that heat-mechanical treatment, particularly NTMO, increases the strength properties of steels. Hydroerosion tests show that steels 40Kh3G6S and 50Kh3G6S possess a considerably high resistivity to jet-impact erosion. At that, the difference between resistance after hardening and low temperature tempering and hardening, sub-zero treatment and low temperature tempering is insignificant regardless of the fact that in the latter case the quantity of martensite is much higher. It is shown that the deformation of steels 40Kh3G6S and 50Kh3G6S under VTMO and particularly under NTMO increases the quantity of residual austenite as compared to ordinary hardening. This is due to lowered transformability of supercooled and deformed austenite into martensite. Likewise, the resistance to jet-impact erosion of these steels significantly increased after VTMO but particularly after NTMO, as compared to ordinary hardening and tempering. This increase in the resistance to hydroerosion due to VTMO and NTMO is traced to high degree of work hardening of austenite obtained as a result of deformation during VTMO and NTMO and to its partial transformation into martensite.

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- 74 -